

This renders the claims allowable, since the prior art (Diethelm, U.S. Patent No. 5,270,131) teaches only the permanent attachment ("soldering") of its contacts to the electrode.

More particularly, Diethelm states that "[t]he contact elements 4 are fixed on the electrode layer *so as to be non-detachable, e.g. by soldering.*" Diethelm, 4:11 - 14. (emphasis added). The Federal Circuit has recently construed a similar expression -- "permanently affixed" -- and found that it requires an "unremovable attachment." *K-2 Corp. v Salomon S.A.*, 52 USPQ2d 1001, 1005 (Fed. Cir. 1999).

In contrast to Diethelm, all the claims of the present invention now expressly require the compliant contacts to contact the adjacent MEA, but not to be "permanently attached" to the MEA. See amended claims 1, 2, 11, 14, 15, 16, 18, 20 and 21. Since neither Diethelm nor any other cited prior art teaches the combination of compliant electrical contacts that are pressed against but not adjoined to the adjacent MEA, the present claims have not been anticipated. *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984) ("[a]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim").

Nor is the claimed invention obvious. Nothing in Diethelm suggests making the electrical contact merely press against the MEA. Indeed, Diethelm teaches the exact opposite - "one of the electrode layers is electrically [,] conductively and *nondetachably* connected to a supporting electron conduction structure via a plurality of regularly disposed contact elements." See Diethelm, Abstract (emphasis added). Since it is neither disclosed nor suggested by the prior art, the present invention is now fully patentable.

Amendments

To the claims:

Please amend the claims as follows:

1. (Twice Amended): A fuel cell assembly comprising:
 a membrane electrode assembly;
 a bipolar separator plate; and
 independently-acting compliant electrical contacts
 attached to said bipolar separator plate, for pressing
 against but not permanently attaching to a membrane
 electrode assembly of an adjacent fuel cell assembly.
2. (Original): A fuel cell stack, comprised of a first assembly according
 to claim 1 and a second assembly according to claim 1,
 wherein the independently-acting compliant electrical
 contacts of said first assembly are in electrical contact
 with but are not permanently attached to the membrane
 electrode assembly of said second assembly.
3. (Previously Amended): The fuel cell assembly according to claim 1 wherein said
 independently-acting compliant electrical contacts
 comprise springs.
4. (Previously Amended): The fuel cell assembly according to claim 1, wherein said
 springs are inverted-V shaped.
5. (Original): The fuel cell assembly according to claim 1, wherein said
 springs are S-shaped.

6. (Original): The fuel cell assembly according to claim 1, wherein said springs are Z-shaped.
7. (Original): The fuel cell assembly according to claim 1, wherein said springs are omega-shaped, wherein said omega-shaped springs have a height and a tapered middle section, said tapered middle section having a width, and wherein said width is at least 50% as great as said height.
8. (Original): The fuel cell assembly according to claim 1, wherein said independently-acting compliant electrical contacts are formed into an array having a length, wherein said membrane electrode assembly has a length, and wherein said length of said array is approximately equal to said length of said membrane electrode assembly.
9. (Original): The fuel cell assembly according to claim 1 wherein said independently-acting compliant electrical contacts are formed into an array having a width, wherein said membrane electrode assembly has a width, and wherein said width of said array is approximately equal to said width of said membrane electrode assembly.
10. (Original): The fuel cell assembly according to claim 8 wherein said independently-acting compliant electrical contacts are formed into an array having a width, wherein said membrane electrode assembly has a width, and wherein said width of said array is approximately equal to said width of said membrane electrode assembly.

11. (Canceled pursuant to restriction requirement)

12. (Twice Amended): Independently-acting compliant electrical contacts for attachment to a bipolar separator plate and for pressing against but not permanently attaching to a membrane electrode assembly in a fuel cell stack.

13. (Original): The independently-acting compliant electrical contacts according to claim 12, wherein said independently-acting compliant electrical contacts comprise springs.

14. (Twice amended): A method for maintaining electrical contact between a bipolar separator plate and a membrane electrode assembly in a fuel cell stack comprising attaching independently-acting compliant electrical contacts to said bipolar separator plate and positioning said independently-acting compliant electrical contacts so as to press against but not permanently attach to said membrane electrode assembly.

15. (Twice Amended): A fuel cell assembly comprising:
a membrane electrode assembly;
a bipolar separator plate; and
flexible means attached to said bipolar separator plate and pressed against but not permanently attached to said membrane electrode assembly for making electrical contact between said membrane electrode assembly and said bipolar separator plate.

16. (Twice Amended): A fuel cell assembly comprising:
a membrane electrode assembly;
a bipolar separator plate; and
flexible electrical contact members attached to said bipolar separator plate and pressed against but not permanently attached to said membrane electrode assembly.
17. (Original): The fuel cell assembly according to claim 16, wherein said flexible electrical contact members comprise a plurality of springs, whereby said springs maintain independently-acting compliant electrical contact between said membrane electrode assembly and said bipolar separator plate.
18. (Twice Amended): A fuel cell assembly, comprising:
a bipolar separator plate, said bipolar separator plate having a first side and a second side;
a membrane electrode assembly, attached to and sealed to said first side; and
independently-acting compliant electrical contacts attached to said second side, for pressing against but not permanently attaching to a membrane electrode assembly of an adjacent fuel cell assembly.
19. (Original): A fuel cell stack, comprised of a first assembly according to claim 18 and a second assembly according to claim 18, wherein the independently-acting compliant electrical contacts of said first assembly are in electrical contact with the membrane electrode assembly of said second

assembly.

20. (Twice Amended):

A fuel cell assembly comprising:
a membrane electrode assembly;
a bipolar separator plate; and
an independently-acting compliant electrical contact
attached to said bipolar separator plate and pressed
against but not permanently attached to said
membrane electrode assembly.

21. (Twice Amended):

A fuel cell assembly comprising:
a membrane electrode assembly;
a bipolar separator plate;
first means for maintaining electrical contact attached
to said bipolar separator plate and pressed against
but not permanently attached to said membrane
electrode assembly between said membrane electrode
assembly and said bipolar separator plate; and
second means for sealing said membrane electrode
assembly with said bipolar separator plate, wherein
said second means functions independently from said
first means.

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Interview Summary

On December 9, 2003, the undersigned and one of the applicants, Jerrold Franklin, Ph.D., had a telephonic interview with the examiner. During the interview, the undersigned proposed filing a Request for Continued Examination, and then filing amendments similar to those offered with the present response.

The examiner tentatively agreed that the proposed amendments would render the claims patentable over the cited prior art, but reserved his right to search for other prior that might be relevant to patentability.

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Since they now *expressly* exclude devices in which the electrical contacts are permanently attached to the MEA, the claimed invention is neither anticipated nor obvious in light of the prior art, and therefore must be allowed.

Dated: February 6, 2004

By: *Daniel P. Maguire*
Daniel P. Maguire, Reg. 41,506
Tel: (530) 750-3661